

dreaded sleeping sickness which has destroyed tens of thousands of lives in Central Africa. Much of the matter in the volume under review deals with the relationship between these two diseases.

The first article is a report by Messrs. Dutton, Todd, and Christy on an expedition into the Congo Free State, undertaken at the request of the King of the Belgians. At the hospital at Boma, and during a journey into the cataract region, a number of patients were seen who were regarded by the district medical officers as cases of sleeping sickness, but in whom the somnolence, so characteristic of the disease in Uganda, was completely absent. Nevertheless, trypanosomes were found in the blood both of those cases in which the diagnosis of sleeping sickness was certain and of those which were atypical. But in addition trypanosomes were frequently seen in the peripheral blood of apparently healthy individuals.

In the next article, the relationship of human trypanosomiasis to Congo sleeping sickness is discussed by

Congo Free State trypanosomiasis cases, are all identical in morphology and animal reactions with the *Tr. gambiense*.

In an interesting paper, Messrs. Dutton, Todd, and Christy describe the Congo floor maggot, a blood-sucking dipterous larva extensively found in various parts of the Congo Free State, and identified by Mr. Austen as the *Auchmeromyia luteola*, Fabr. These larvæ seem to lurk in the cracks and crevices of the mud floors of the native huts, from whence they emerge at night and attack the persons sleeping there. The volume concludes with a note by Mr. Austen on tsetse-flies. Since his monograph on the tsetse-flies was issued, further observation has convinced Mr. Austen that the *Glossina tachinoides*, regarded by him as a variety of *G. palpalis*, must be reckoned as a distinct species.

The volume of the Thompson-Yates and Johnston Laboratories Report contains the reports on trypanosomiasis, &c., described above, and several additional papers of interest. Dr. Stephens describes a new hæmogregarine from an African toad, two cases of intestinal myiasis (fly larvæ) observed in children in Liverpool, a note on swellings of uncertain ætiology in a tropical patient, and a note on non-flagellate typhoid bacilli. The last named were from an old laboratory strain which had been subcultured for some years, and seemed completely to have lost their flagella and motility. Mr. Shipley describes a new human trematode parasite from German West Africa, and Mr. Dutton defines the intermediate host of a lymph worm (filaria) of an African swift; this is found to be the louse which infests these birds. Prof. Moore and Mr. Roaf contribute an important experimental study of the physical chemistry of anaesthesia, from which they conclude that chloroform forms an unstable chemical compound or physical aggregation with proteid and hæmoglobin, and is carried in the blood in such a state of combination, the compounds so formed limiting the chemical activities of protoplasm and inducing anaesthesia. Mr. Edie describes the action of chloroform on serum proteins and hæmoglobin, and, lastly, Mr. Roaf and Mr. Edie describe a simple method for the preparation and determination of lecithin which seems to be a great improvement on the methods hitherto in use. Both volumes are beautifully printed and illustrated, and appear in a new cover, which, artistically, is a great improvement on the old one.

R. T. HEWLETT.

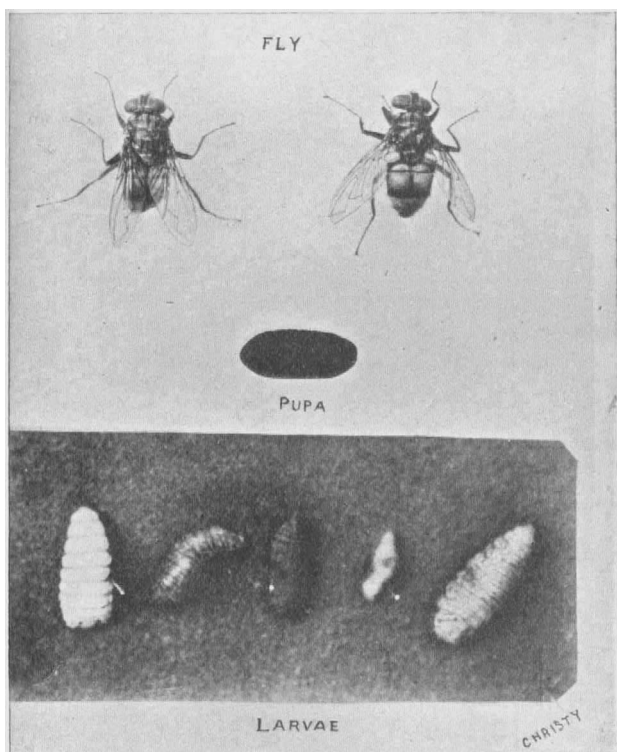


FIG. 1.—Flies, pupa and larvæ (nat. size) of the Congo Floor Maggot.

the same observers. The conclusion is arrived at that the *Tr. gambiense* of the first-named condition is the probable cause of Congo sleeping sickness; but it must be admitted, in spite of the positive statements which have been made on the subject, that something remains to be cleared up. This view is confirmed by Dr. Christy's researches on the cerebro-spinal fluid in sleeping sickness. He considers that all that can definitely be stated is that (1) on the whole the presence of the trypanosome parasites in the cerebro-spinal fluid tends to increase the gravity of the case, (2) in many cases trypanosomes never find their way into the cerebro-spinal fluid, and (3) in the vast majority of cases death is the result of complications, mainly bacterial infections.

The identity or non-identity of the various trypanosomes of man has been investigated by Dr. Thomas and Mr. Linton, who conclude that the parasites found (a) in the cerebro-spinal fluid of Uganda sleeping sickness, (b) in that of Congo Free State sleeping sickness, (c) in the blood of Uganda trypanosomiasis cases, and (d) in the blood of

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The General Board of Studies has appointed Mr. T. S. P. Strangeways, St. John's College, Huddersfield lecturer in special pathology, from Lady Day, 1905, until Michaelmas, 1909, and the appointment has been confirmed by the Special Board for Medicine. Mr. R. P. Gregory, of St. John's College, has been appointed senior demonstrator in botany for four years, until June 24, 1909.

The list of successful candidates for open scholarships at Downing College is so far unusual that all the winners are natural science students. It is as follows:—A. W. Bourne, Rydal Mount School, Colwyn Bay, 50l.; A. C. Johnson, Merchant Taylors' School, 40l.; W. G. Stevens, The Leys School, Cambridge, 40l.; I. K. Matthews, Merchant Taylors' School, Crosby, Liverpool, 40l.

OXFORD.—The university has resolved to contribute a sum not exceeding 1000l. towards the printing of that portion of the British section of the International Astrophysical Catalogue which has been executed at the university observatory.

By a statute passed in 1904, the university established a "diploma in scientific engineering and mining subjects," and the committee appointed to arrange the details of the scheme has now issued the regulations concerning the diploma. Members of the university will be eligible for the diploma who have passed at the examinations required for the degree of B.A., and have satisfied the examiners in certain special subjects mentioned in the following list, after an approved course of study in those subjects extending over two years, and have also gone

through an approved course of practical training lasting four months, either at a mine or in engineering works. The subjects that may be offered are:—(a) mathematics for applied science; (b) physics and chemistry; (c) French and German translation; (d) engineering principles and machine drawing; (e) surveying; (f) geology; (g) mineralogy; (h) mining and engineering, hygiene and mine-ventilation; (i) electricity; (j) assaying. For the ordinary diploma candidates will be required to pass in (a), (b), and (c), and in not less than three of the remaining subjects, provided that (f), (g), and (i) are not taken together without one or more of the others. Candidates who propose to become colliery managers and desire to obtain exemption from two of the five years' underground work required by the Home Office as a qualification for a certificate as colliery manager, must obtain a special diploma by passing in the subjects (a), (b), (c), (h), and three (not being f, g, i) of the remainder, and by taking their four months' course of practical training at a mine.

PROF. W. JAMES, of Harvard University, has accepted, *Science* reports, the acting professorship of philosophy at Stanford University. He will lecture at Stanford during the second half of the next academic year, and will organise a department of philosophy for the university.

A GENERAL meeting of the Association of Teachers in Technical Institutes will be held on Saturday, March 25, at the Regent Street Polytechnic, London, when an address, to be followed by a discussion, will be delivered by Mr. W. J. Lineham, head of the engineering department, Goldsmiths' Institute, entitled "Technical Training—a Teacher's Views."

IN connection with the International Exposition to be held at Liège, Belgium, from April to November during the present year, it is proposed to hold an International Congress of Childhood on September 17–20. The congress will be organised in four sections, as follows:—(1) education of children; (2) study of children; (3) care and training of abnormal children; (4) parents' associations, mothers' clubs, and other supplementary agencies for the improvement of youth.

THE council of Liverpool University has accepted an offer from the president, Mr. E. K. Muspratt, to provide for an extension and equipment of the chemical laboratories at an estimated cost of 10,500*l.* The following contributions for the extension and maintenance of the chemical department have also been acknowledged by the council:—100*l.* per annum for five years from the United Alkali Company, Ltd., 100*l.* each from Mr. George Wall, West Kirby, and Mr. T. Threlfall, London.

A NEW technical college and secondary school at East Ham was opened by the Prince and Princess of Wales on Saturday. The building has been erected and equipped at a cost of about 24,000*l.*, towards which the Essex County Council has contributed 6000*l.*, and the remainder has been made up by the East Ham Corporation. The accommodation includes a botanical room, chemical class-room and laboratory, physics laboratory, carpenter's shop, and provision for the pursuit of various crafts—plumbing, metal-work, brickwork, &c. In replying to the address presented by the Mayor of East Ham, the Prince of Wales said:—It is difficult to realise that only ten years ago these crowded streets were green lanes, that your population has multiplied nearly twentyfold in the last thirty years, and that within your borough one industry alone employs more than 10,000 men. You have very rightly recognised that this remarkable growth carries with it serious responsibilities. The vast and rapidly increasing population of the borough necessitates the provision of suitable secondary and technical education, and in this institution you are furnishing that educational equipment for the rising generation which is indispensable if we intend to maintain our place in the great struggle for commercial supremacy. My heart is with you in all such undertakings as that which we are about to inaugurate, and I trust that every success may attend your useful and patriotic efforts.

NO 1847, VOL. 71]

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 16.—"Further Observations on Slip-Bands.—Preliminary Note." By Walter **Rosenhain**. Communicated by Prof. Ewing, F.R.S.

The paper describes what the author believes to be a novel method of investigating the micro-structure of metals, and some preliminary results obtained by its aid. The method was devised in order to throw further light on the true nature of slip-bands, and the preliminary results relate mainly to this question.

A direct means of examining the surface configuration of a piece of metal upon which slip-bands have been produced would be presented by a transverse section of such a specimen, provided that the section could be produced with an absolutely sharp edge, but no useful result can be obtained by cutting the specimen through and simply polishing the exposed section. The edges of specimens prepared by the usual methods of polishing are always rounded off, so that it becomes impossible to focus upon any definite edge with high-power lenses; and even apart from this defect, there would be no guarantee that the edge represented a true section of the pre-existing surface.



FIG. 1.—Transverse Section of Slip-bands. Vertical illumination $\times 1000$ diameters.

The author has adopted the principle sometimes used in optical work of supporting the surface, which in section becomes the edge, by means of an adherent layer of hard material; but the conditions which such a layer must satisfy for the purposes of metallography are very stringent. In order to satisfy them, the author uses a deposit of another metal obtained by electrolytic means, and this method has proved satisfactory.

The specimens used consisted of strips of the mildest steel, and after preparation an electro-deposit of copper was applied to them. By first bending the strips into a flat U shape, short portions of their length could be polished in the usual manner for microscopic examination; subsequently the strips could be readily strained in tension. The slip-bands and other features of the specimens having been satisfactorily observed, electro-deposition was proceeded with, care being taken to avoid chemical action on the prepared surface by the preliminary use of a bath of copper cyanide.

The specimens were then cut across. In order to obtain a satisfactory polish, the ordinary method of polishing had to be modified; it was found that polishing with rouge rapidly eroded a deep groove between the copper and iron,